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DD/S&T 2235-68

6 June 1968

MEMORANDUM FOR: Director of Planning, Programming and  
Budgeting

SUBJECT : Long Range R&D Issues

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1. Discussions with [ ] on the format and content of the issues memo to the DCI pertaining to the FY 70-74 Program Call indicate that no R&D issues need to be included in this memo. However, prior submissions to BoB, and other memoranda, have identified various R&D items of special interest. This memo briefly treats old items which may still be of some interest and, in addition, the team approach to R&D planning used this year surfaced some new items which are included for your consideration.

Management Issue

2. Substantial improvement is evident in several areas of management of the over-all RD&E Program. Several formal actions, including designation of the DD/S&T as the R&D Co-ordinator, and the development of an Agency Project Officers' Manual have established some of the mechanisms through which further progress may be achieved. Significant improvement is still needed, however, in:

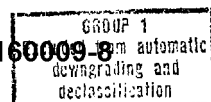
- a. Monitoring and evaluating the progress of all Agency RD&E projects and the over-all program.
- b. Determination of the needs which RD&E can satisfy and the priority of these needs.
- c. Effective communication among the technical components.

The progress achieved and the problems still extant are discussed in detail in the following paragraphs. Since the needed actions are

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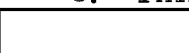
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clear (though not necessarily easy to implement) and progress is evident, specific recommendations are provided with the detailed discussions which follow.

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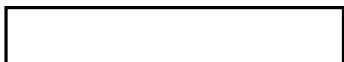
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3. This project continues to be the single largest R&D program.  was reviewed recently by the DD/S&T, and it was found that important data may potentially be acquired by this system. In addition, the management structure for this program has been strengthened, and a decision has been made to proceed directly with the design of operational equipment and limit the desirable, but costly, investigation of alternative systems. Because the program has generally been planned at a level of funding above what was provided, it is difficult to assess the rate at which the program has been progressing. From the recent review, however, funding and schedule now appear to be reasonably related.

With the intelligence needs for the project now more specifically defined, and high confidence in technical feasibility, the only outstanding question of significance remains that of the detectability and vulnerability of the system to opposition defenses.

4. The budget for the total program recently approved by the Executive Director-Comptroller is reflected in the FY 70-74 Plan.

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5. Consistent with the plan presented a year ago, these programs have largely been phased out. One program is currently receiving substantial support from the DoD (ARPA). Although originally seen by ARPA as an interdiction system, the objectives of this program at this time are more closely directed towards intelligence collection, and hence the activities are of interest to the Agency. This is significant, since management of this particular program requires a full time effort of one of our Project Officers in addition to support by the Contract, Security, and Audit Staffs. Consequently, continual assessment of the value of the program to the Agency is essential.

Depending upon the outcome of the current program, we may elect to:

- a. Continue in our present role.

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b. Drop out of this [ ] completely also, or

c. Proceed to phase management and contracting responsibility for the program to the DoD and remain active in the program only on a consulting basis.

Recommendation

6. Alternative (c) is recommended if the program is continued because of the increasing magnitude of the program and the fact that it will have obtained an operational status. Continuation in the current role would unduly burden several elements of the Agency while providing a return of minimal value beyond the benefit which would be achieved through alternative (c).

Basic Research

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7. No basic research is planned in the FY 70-74 program, and this should be clearly stated in the program plan submitted to the Bureau of the Budget. [ ] and other studies show that only a very weak relationship exists between the results of current basic research and current equipment needs or techniques. It is recognized that support by the Government of this fundamental work is of general interest to the Agency, but we are poorly equipped to lead and manage this area of RD&E. Applied research work is planned only where clearly essential to definite Agency needs, and where other organizations could not be expected to conduct this work. Such work, for example, includes studies and the development of better sensors pertaining to the polygraph. The Agency position in response to the Program Call should be that existing technology almost completely provides sufficient means through which the Agency's RD&E needs may be satisfied. A wider recognition of this position and better organization of our R&D effort may help to stimulate more imaginative and effective exploratory development.

Recommendation

8. Since necessity is indeed the mother of invention, it is recommended that funds for exploratory development be distributed throughout the RD&E program as currently planned for the FY 70-74 period, and that more vigorous exploratory work be conducted by all RD&E elements. Through this arrangement closer coupling

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may be achieved between the exploratory development activities and the needs of the Agency.

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9. This important area of R&D support has failed to produce many significant improvements in either equipment or techniques. Although specific organizational arrangements were made within the DDP and the Office of Security to provide a closer working arrangement with the R&D activities, this relationship appears to remain sterile except for ad hoc reviews at which time proposed R&D programs may be referred to the users for comment. A review of the planned work shows a significant amount of "try again harder" approaches and very little which could be called truly imaginative or with any particular potential for significantly improving [REDACTED] capability. The initial R&D program call submission in this element started by referencing [REDACTED] [REDACTED] and unfortunately the focus of the program seems to be on history rather than on the here now.

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If the [REDACTED] problem is as important and as complex as the past efforts would seem to indicate, it is doubtful if acceptable progress should be expected by continuing to do business as usual. One alternative would be the establishment of a task force with the objective of obtaining a few breakthroughs by concentrating our limited assets against two or three of the more promising approaches rather than continuing to dissipate the effort across a broad front. This task force should consist of both operational and R&D personnel under a single manager who would have full control of the members of the group and the financial resources of this program element.

A second alternative would be to reduce the effort in this element to support only the most promising two or three approaches, and reserve the rest of the funds for this area in order to exploit any promising results that might be obtained from this effort or from any relevant technology produced outside Agency sponsorship.

#### Recommendation

10. The first alternative is recommended providing an initial study is made to determine precisely what has been done in the past, what is needed, and what is acceptable. Any new programs should explicitly show an appreciation for past work as well as the

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identified needs and operational restrictions extant.

#### R&D Coordination

11. There is improvement and progress in the coordination of the R&D effort in the Agency, particularly from a technical point of view. Formal designation of the DD/S&T as the responsible official for R&D coordination in August 1967 provided a focal point for this needed activity, and other incidental factors such as the establishment of the Contract Review Board, the Project Officers' Manual, and the various discussions among the technical components on contract information systems have served to promote better Agency-wide communications and more consistent practices.

The action of most significance, however, may be the coordinated R&D planning by the technical components within the various R&D program elements. The R&D Program element structure was modified last year to facilitate the R&D planning, programming, and budgeting. When the initial Directorate submissions for this plan were found to be beyond the limits which could reasonably be supported, budgetary dollar levels were developed for each R&D subcategory, and for most of the elements, by an ad hoc inter-Directorate group. These levels definitely reflected an objective consensus derived from a variety of subjective experience and judgment. With these budgetary guidelines, the responsible managers of each technical component sharing in any one R&D element jointly reviewed their plans and developed a single program representing their best judgment in terms of priorities in line with the over-all dollar level which had been specified. Considering this is the first time that an integrated R&D planning activity has been used to develop the total R&D program, both the effort and the results reflect most favorably upon the managers who participated. While there were rough spots, they were less serious and less extensive than might have been anticipated.

In addition to the integrated planning within the R&D program elements, provision has also been made for coordination of R&D programs in terms of the technical fields involved. Reviews of power supply projects and recorder projects will initiate coordination in this direction, and this activity will also promote communication among the technical components and result in a more effective and efficient Agency R&D program.

Additional progress may be made in R&D coordination. From

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the current planning effort it is clear that budgetary guidelines should be developed by October which represent an inter-Directorate consensus and which can be used for planning purposes by the various technical managers prior to inclusion of proposed R&D work in the Directorate plans. This will allow sufficient time for detailed discussions to take place, and will preclude much of the frustration which inevitably follows when planned levels of effort are not realistic and must be substantially revised. A more objective classification of R&D effort is also needed to assure that all of the Agency's work in any R&D program element is included. In the current integrated effort there was some evidence of misclassification apparently, in some cases, with the objective of obtaining organizational strongholds within particular program elements. Continued improvement is needed to reduce parochial attitudes both with respect to organizational element as well as technical specialty.

#### Recommendation

12. The R&D Coordinator should be encouraged to maintain long-range plans in a current status in cooperation with PPB. R&D effort is rarely characterized by long-term stability, and more effective means to achieve flexibility and responsiveness are needed. O/PPB should provide over-all budgetary figures which may be used by the inter-Directorate group as a reasonable total R&D budget figure for planning. As a minimum, the R&D Coordinator should regularly review the status of R&D plans on a semiannual basis.

#### R&D Management

13. The management of R&D projects, as well as the management of the R&D programs as a whole, is also improving. It is also apparent, however, that the classical problems of management need continuing attention in this important area of effort. In particular, the R&D program is incomplete. Specific objectives with associated schedules and budgets are almost non-existent except for a few major programs whose magnitude cause top level attention to focus on these programs. Coordination between the R&D components and those who will ultimately use the results of these programs is inadequate. Hopefully--especially as a result of the experience of the integrated planning of the FY 70-74 program--the users will come more fully into their proper and needed role as members of the R&D team. Although the planning and programming process can stimulate this activity, feedback from R&D work in terms of progress reports, failures, etc., must be recognized as equally important, and more

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formal mechanisms for providing this information established. This deficiency is apparent not only between R&D performers and users but is also obviously lacking within the R&D structure itself.

A particular deficiency in the R&D programs is systems analysis. Surprisingly, there appears to be little appreciation or effort given to planning the total intelligence-collection-communications-processing-production job and assuring that the interfaces between the various phases are consistent and compatible. There is also little evidence that careful attention is given to the technical literature, and especially the reference services of the Department of Defense, Department of Commerce, etc. Especially when defining our programs, the ability to present some evidence which explains how the proposed work differs from what others have done would be most useful and would ensure more efficient use of the R&D funds.

#### Recommendation

14. The components who are dependent in any way upon the R&D program should continue to be invited to assist in planning and evaluating the R&D programs. Every effort should be made to see that truly imaginative people assist in this important task.

As a matter of practice, any proposed exploratory development project should specifically define the objectives of the project, indicate any literature searches which have been done, describe what's difficult about the proposed work, and why it is needed, and be discussed with potential users of the results. This may be readily done at the initiative of the various managers who are responsible for coordinating work in technical fields; however, on any proposal requiring approval by the DCI it is recommended that a formal statement be included in the memorandum requesting approval stating the user's concurrence in the utility of the proposed project.

It is further recommended that a comprehensive and detailed study be undertaken in two areas to assess in depth possible planning and programming techniques which might be used to stimulate more effective management in difficult R&D areas. The [ ] 25X1D

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[ ] program suggests itself as representative of a difficult

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program element, and the power sources technical field typifies a technological area in which nearly all Agency technical components participate.

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/S/

[Redacted]

O/PPB R&D Program Team Leader

cc: R&D Coordinator

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